5-Port 10/100/1000Mbps Gigabit Ethernet Switch (Desktop)

User Guide

AirLink+

UG-AGIGA5SW-1105

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This equipment has been tested and found to comply with the regulations for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

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About This Guide

This user's guide tells you how to install your 5-Port 1000BASE-T Gigabit Ethernet Switch, how to connect it to your Gigabit Ethernet network.

Terms & Usage

For simplicity, this documentation uses the terms "Switch" (first letter upper case) to refer to the 5-Port 1000BASE-T Gigabit Ethernet Switch, and "switch" (first letter lower case) to refer to all Ethernet switches, including the 5-Port 1000BASE-T Gigabit Ethernet Switch.

Overview of this User's Guide

This user guide contains the following sections:

Introduction—Describes the Switch and its features.

Unpacking and Installation—Helps you get started with the basic installation of the Switch.

Identifying External Components—Describes the Switch's front panel, rear panel, and LED indicators.

Technical Specifications—Lists the Switch's technical (general, physical and environmental, and performance) specifications.

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Introduction

This section describes the features of the 5-Port 1000BASE-T Gigabit Ethernet Switch, as well as providing some background information about Gigabit Ethernet and switching technology.

Gigabit Ethernet Technology

Gigabit Ethernet is an extension of IEEE 802.3 Ethernet utilizing the same packet structure, format, and support for CSMA/CD protocol, full duplex, flow control, and management objects, but with a tenfold increase in theoretical throughput over 100Mbps Fast Ethernet and a hundredfold increase over 10Mbps Ethernet. Since it is compatible with all 10Mbps and 100Mbps Ethernet environments, Gigabit Ethernet provides a straightforward upgrade without wasting a company's existing investment in hardware, software, and trained personnel.

The increased speed and extra bandwidth offered by Gigabit Ethernet is essential to coping with the network bottlenecks that frequently develop as computers and their busses get faster and more users use applications that generate more traffic. Upgrading key components, such as your backbone and servers to Gigabit Ethernet can greatly improve network response times as well as significantly speed up the traffic between your subnets.

Gigabit Ethernet supports video conferencing, complex imaging, and similar data-intensive applications. Likewise, since data transfers occur 10 times faster than Fast Ethernet, servers outfitted with Gigabit Ethernet NIC's are able to perform 10 times the number of operations in the same

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amount of time.

Switching Technology

Another key development pushing the limits of Ethernet technology is in the field of switching technology. A switch bridges Ethernet packets at the MAC address level of the Ethernet protocol transmitting among connected Ethernet or fast Ethernet LAN segments.

Switching is a cost-effective way of increasing the total network capacity available to users on a local area network. A switch increases capacity and decreases network loading by making it possible for a local area network to be divided into different segments which don't compete with each other for network transmission capacity, giving a decreased load on each.

The switch acts as a high-speed selective bridge between the individual segments. Traffic that needs to go from one segment to another is automatically forwarded by the switch, without interfering with any other segments. This allows the total network capacity to be multiplied, while still maintaining the same network cabling and adapter cards.

Switching LAN technology is a marked improvement over the previous generation of network bridges, which were characterized by higher latencies. Routers have also been used to segment local area networks, but the cost of a router and the setup and maintenance required make routers relatively impractical. Today's switches are an ideal solution to most kinds of local area network congestion problems.

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Features

The 5-Port 1000BASE-T Gigabit Ethernet Switch was designed for easy installation and high performance in an environment where traffic on the network and the number of users increase continuously.

- Five 1000BASE-T Gigabit Ethernet ports
- Supports Auto-Negotiation for 10/100/1000Mbps and duplex mode
- Supports Auto-MDIX for each port
- Support Full/Half duplex transfer mode for 20/10 and 200/100Mbps
- Support Full duplex transfer mode for 1000Mbps
- Full wire speed reception and transmission
- Store-and-Forward switching method
- Supports 8K absolute MAC addresses
- Supports 256KBytes RAM for data buffering
- Extensive front-panel diagnostic LEDs
- IEEE 802.3x flow control for full-duplex
- Back pressure flow control for half-duplex

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Unpacking & Installation

This chapter provides unpacking and setup information for the Switch.

Unpacking

Open the shipping carton and carefully unpack the contents. The carton contains the following items:

- One 5-port 10/100/1000Mbps Gigabit Ethernet Switch
- One external power adapter
- Four rubber feet to be used for shock cushioning
- This User's Guide

If any item is missing or damaged, contact your local reseller for replacement.

Installation

The site where you install the Switch may greatly affect its performance. When installing, consider the following pointers:

- Install the Switch in a fairly cool and dry place. See Technical Specification for the acceptable operating temperature and humidity ranges.
- Install the Switch in a site free from strong electromagnetic source, vibration, dust, and direct sunlight.
- Leave at least 10cm of space at the left and right hand side of the Switch for ventilation.
- Visually inspect the DC power jack and make sure that it is fully secured to the power adapter.

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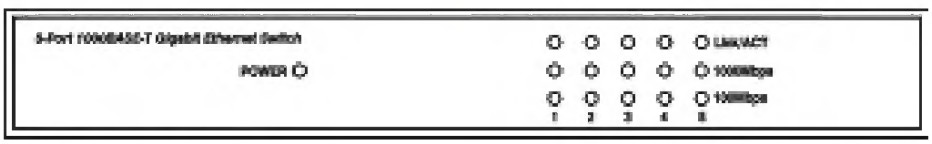
External Components

This section identifies all the major external components of the switch. Both the front and rear panel is shown, followed by a description of each panel's feature.

Front Panel

Figure 1 shows the Switch's front panel.

Figure 1. Switch Front Panel



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LED Indicator Panel

The LED indicator panel contains the following indicators:

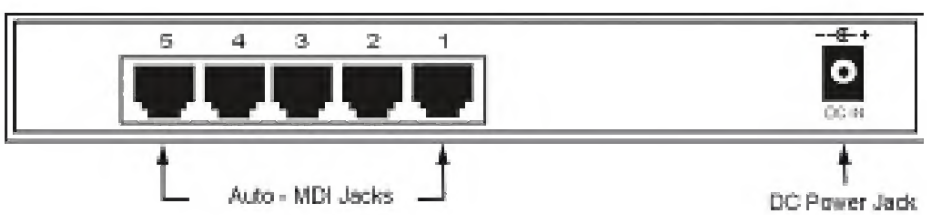
- **POWER** - This indicator lights green when the Switch is receiving power, otherwise, it is off.
- **Link/Act** - These LED indicators are lighted up when there is a secure connection (or link) to the desired port. The LED indicators blinking whenever there is reception or transmission (i.e. Activity-Act) of data occurring at a port.
- **1000Mbps** - These LED indicators are lighted up when there is a secure connection (or link) to 1000Mbps Gigabit Ethernet device at the desired port.
- **100Mbps** - These LED indicators are lighted up when there is a secure connection (or link) to 100Mbps Fast Ethernet device at the desired port.

  When the connection (or link) is 10Mbps, both of 1000Mbps and 100Mbps LED indicators are off.

Rear Panel

Figure 2 shows the Switch's rear panel. The rear panel includes the twisted-pair ports and the DC power jack.

Figure 2. Switch Rear Panel



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1000BASE-T Ports

Five Gigabit Ethernet ports of 10/100/1000Mbps Auto-Negotiation interface.

DC Power Jack

Power is supplied through an external AC power adapter. Check the technical specification section for information about the AC power input voltage.

> Since the switch does not include a power switch, plugging its power adapter into a power outlet will immediately power it on.

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Technical Specifications

Tables 1 to 3 provide Switch specifications.

Table 1. General Specifications

Feature	Description
Standards	IEEE 802.3 10 Base-T ethernet IEEE 802.3a 100 Base-TX fast ethernet IEEE 802.3ab 1000 Base-T gigabit IEEE 802.3x flow control
Protocol	CSMA/CD
Data transfer rate	Ethernet: 10Mbps (Half-duplex) 20Mbps (Full-duplex) Fast Ethernet: 100Mbps (Half-duplex) 200Mbps (Full-duplex) Gigabit Ethernet: 2000Mbps (Full-duplex)
Topology	Star
Network cables	Ethernet: 2-pair UTP Cat. 3,4,5, Unshield Twisted Pair (UTP)Cable Fast Ethernet: 2-pair UTP Cat. 5, Unshield Twisted Pair (UTP)Cable Gigabit Ethernet: 4-pair UTP Cat. 5, Unshield Twisted Pair (UTP)Cable
Number of ports	5 × 10/100/1000 Mbps auto-MDI/MDI-X ports

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Table 2. Physical & Environmental Specifications

Feature	Specification
DC inputs	7.5 V, 1.5 A
Power consumption	8.5 watts (maximum)
Temperature	Operating: 0˚ to 40˚ C Storage: –10˚ to 70˚ C
Humidity	5 to 90% RH, non-condensing
Dimensions	171 × 98 × 29 mm (W × H × D)
Certification	FCC Class A, CE Mark Class A, VCCI Class A

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Table 3. Performance Specifications

Feature	Specification
Transmission method	Store-and-forward
RAM buffer	256 Kbytes per device
Filtering address table	8K entries per device
Packet filtering/ forwarding rate	Full wire speed
MAC address learning	Self-learning, auto-aging

Technical Support

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